US Consumer-Directed E-Commerce Revenues, 1999-2003


Fig. 1

Total US Consumer Payments: Share of Transactions, 1998, %


Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Notifications

Orders

Sub-Buyers

Retail Buyers

Shipping
Profiles

Retail Buyer
Accounts

End Users

Fig. 7

EXTERNAL SOURCE/EXTERNAL SOURCE USER
RELATIONSHIPS

EXTERNAL
SOURCE

DEVICE ISSUE
AUTHORITY

EXTERNAL
SOURCE
SYSTEM USERS

DEVICE ISSUE
AUTHORITY

Fig. 8

DEVICE INVENTORY

MOVEMONEY
DEVICE
INVENTORY

EXTERNAL
SOURCE

DEVICES NOT
YET ISSUE TO
EXTERNAL
SOURCES

DEVICES
ISSUED

DEVICE LOTS

Fig. 9

USER/DEVICE/ACCESS RELATIONSHIPS

END USER

EXTERNAL
SOURCE

ACCESS
AUTHORITY

DEVICES

ACCESS

Fig. 10

PRODUCT AUTHORIZATION RELATIONSHIPS

PRODUCT

ACCESS
REQUIREMENTS/
STATISTICS

ACCESS
AUTHORITY

Fig. 11

[Typical User Interface Screen]

XXXXXX

MM Logo (Ref)

Location to Place Screen Designation

Fig. 12

Fig. 13
Main/Home Screen
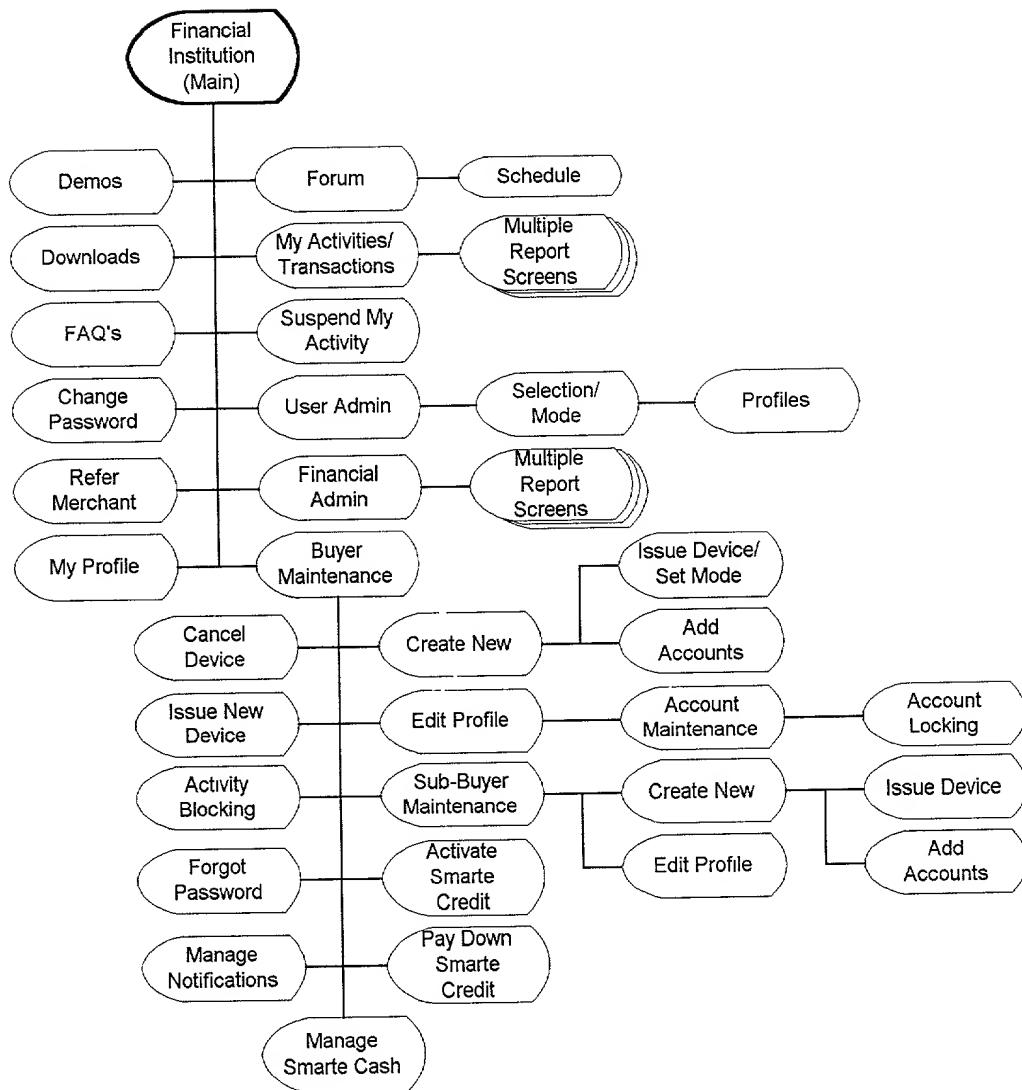
Fig. 14
Financial Institution Main Screen
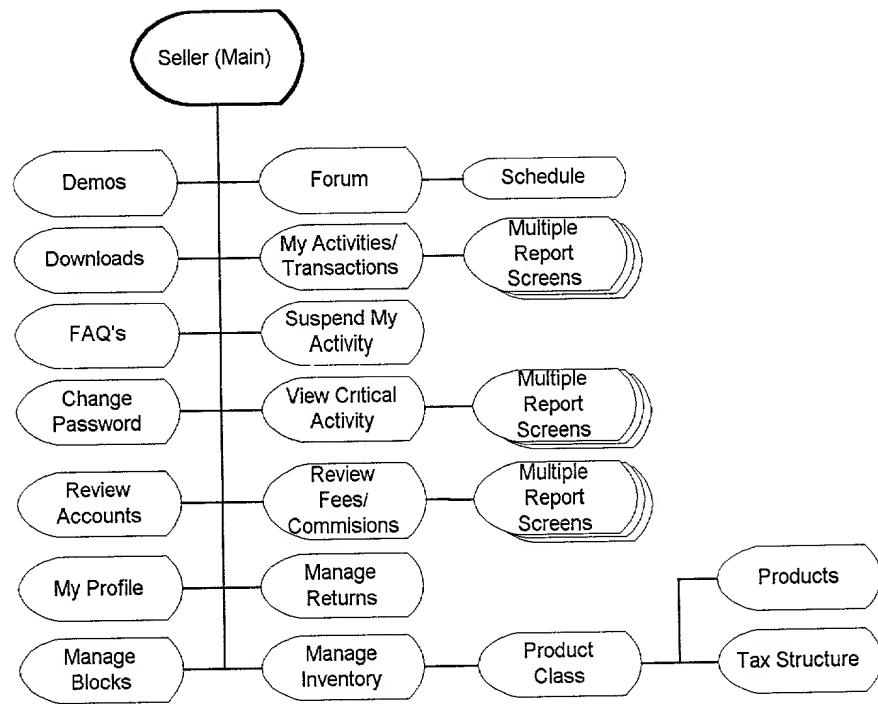
Fig. 15
Seller Main Screen

Buyer (Main)

Demos

Downloads

FAQ's

Change Password

Manage Notifications

Shipping Address Selection

Shipping Address Maintenance

Forum

My Activities/ Transactions

View Critical Activity

Shop

Sub-Buyer Profile Maintenance Selection

My Profile

Account Management

Send Smarte Cash

Schedule

Multiple Report Screens

Multiple Report Screens

Suspend My Activity

Sub-Buyer Profile Maintenance

Review Accounts

Pay Down Smarte Credit

Increase Smarte Cash

Order Screen

Search For Specific Product

Search For Specific Merchant

Activity Blocking

Manage Access Blocks

Manage Accounts

Smarte Ads Checkout

Payment Options

Purchase Confirmation

Shipping Address Selection

Shipping Address Maintenance

Product Info

Merchant Info

Add to Cart

Add Account

Edit Account

Lock Account

Fig. 16
Buyer Main Screen
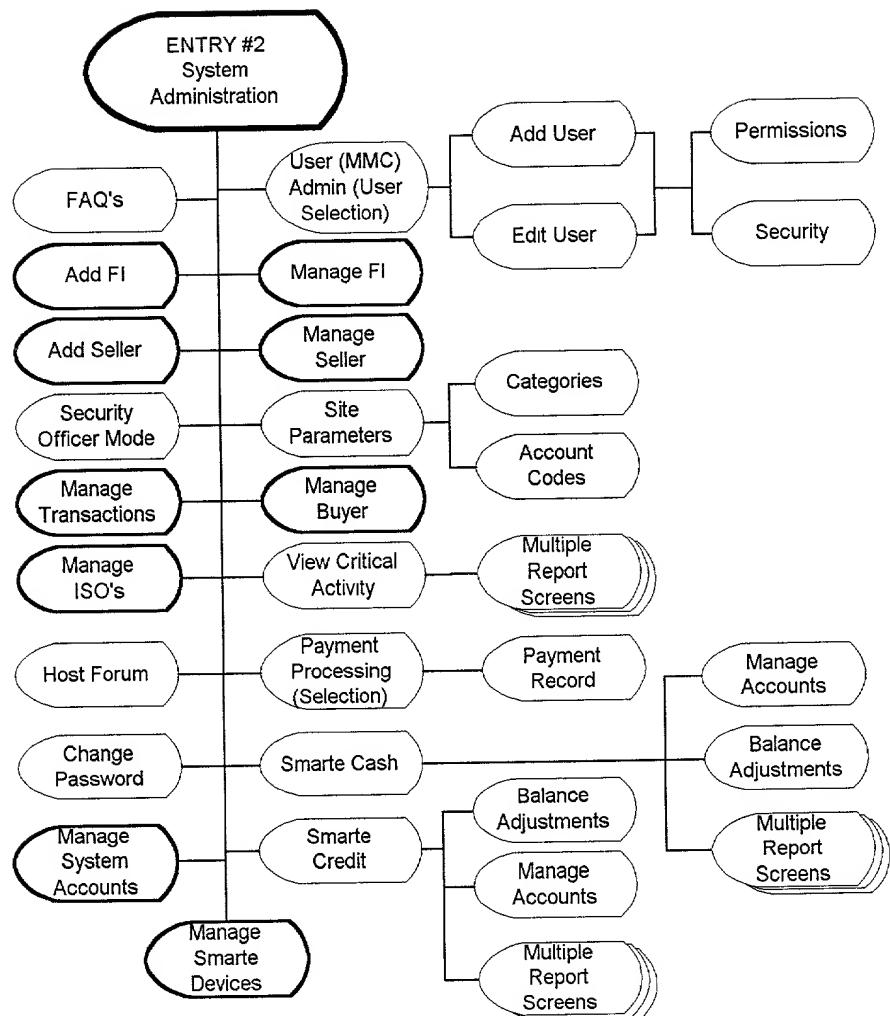
Fig. 17
Administration Main Screens
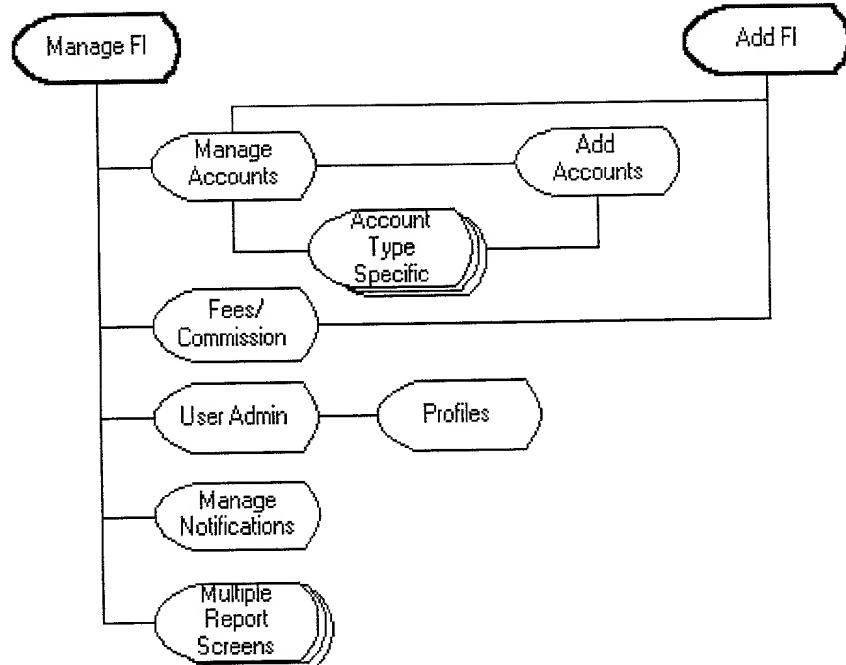
Fig. 18
Administration – Financial Institution Management Screens
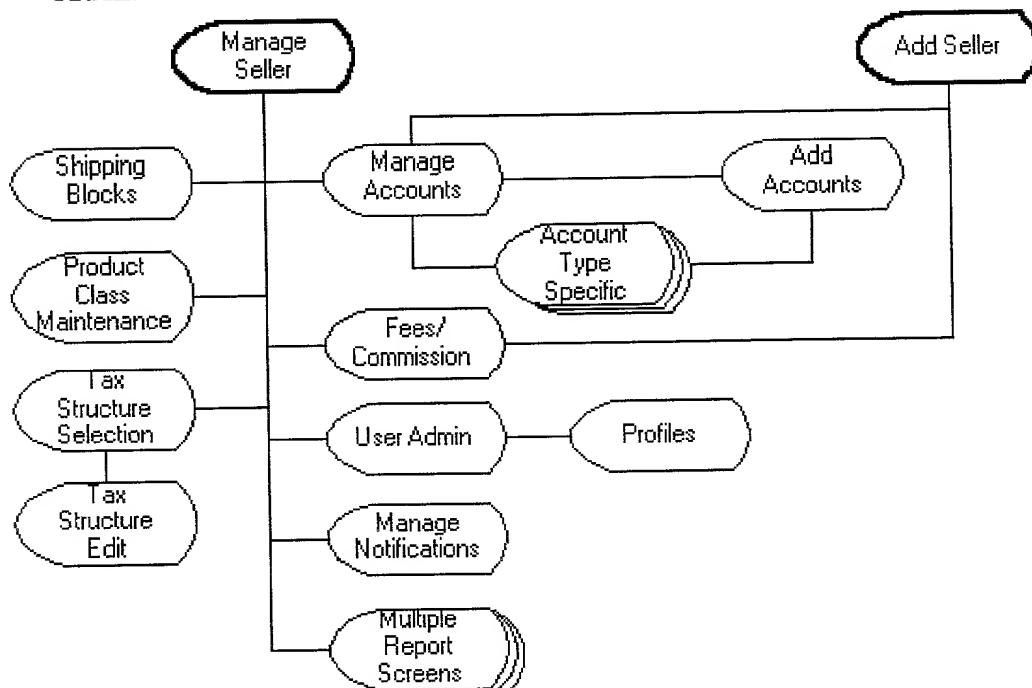
Fig. 19
Administration – Seller Management Screens

```
                    ┌──────────┐
                    │  Manage  │
                    │  ISO's   │
                    └────┬─────┘
          ┌──────────┐   │   ┌──────────┐
          │ Add ISO  ├───┼───┤ Edit ISO │
          └──────────┘   │   └──────────┘
          ┌──────────┐   │   ┌──────────┐
          │   ISO    ├───┼───┤  Fees/   │
          │Attachments│  │   │Commissions│
          └──────────┘   │   └──────────┘
          ┌──────────┐   │   ┌──────────┐
          │ Multiple │   │   │ Accounts │
          │  Report  ├───┘   └────┬─────┘
          │ Screens  │            │
          └──────────┘  ┌─────────┼─────────┐
               ┌────────┴──┐   ┌──┴────────┐
               │Add Account├───┤Edit Account│
               └───────────┘   └───────────┘
                         ┌───────┐
                         │ Close │
                         │Account│
                         └───────┘
```
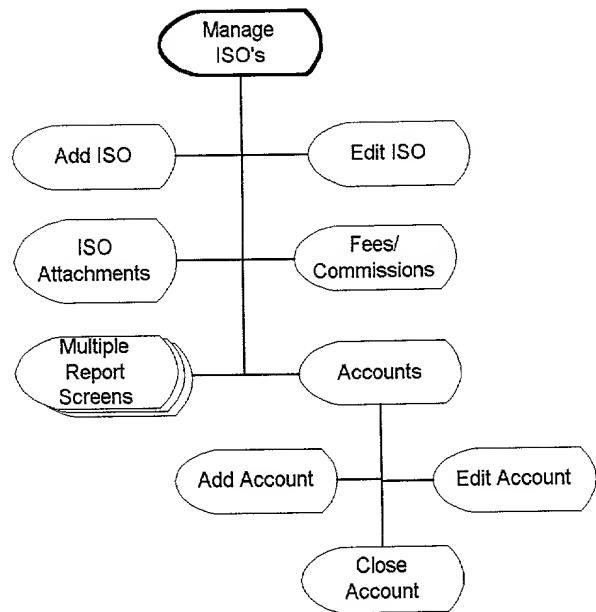
Fig. 20
Administration – Independent Sales Organization
Management Screens
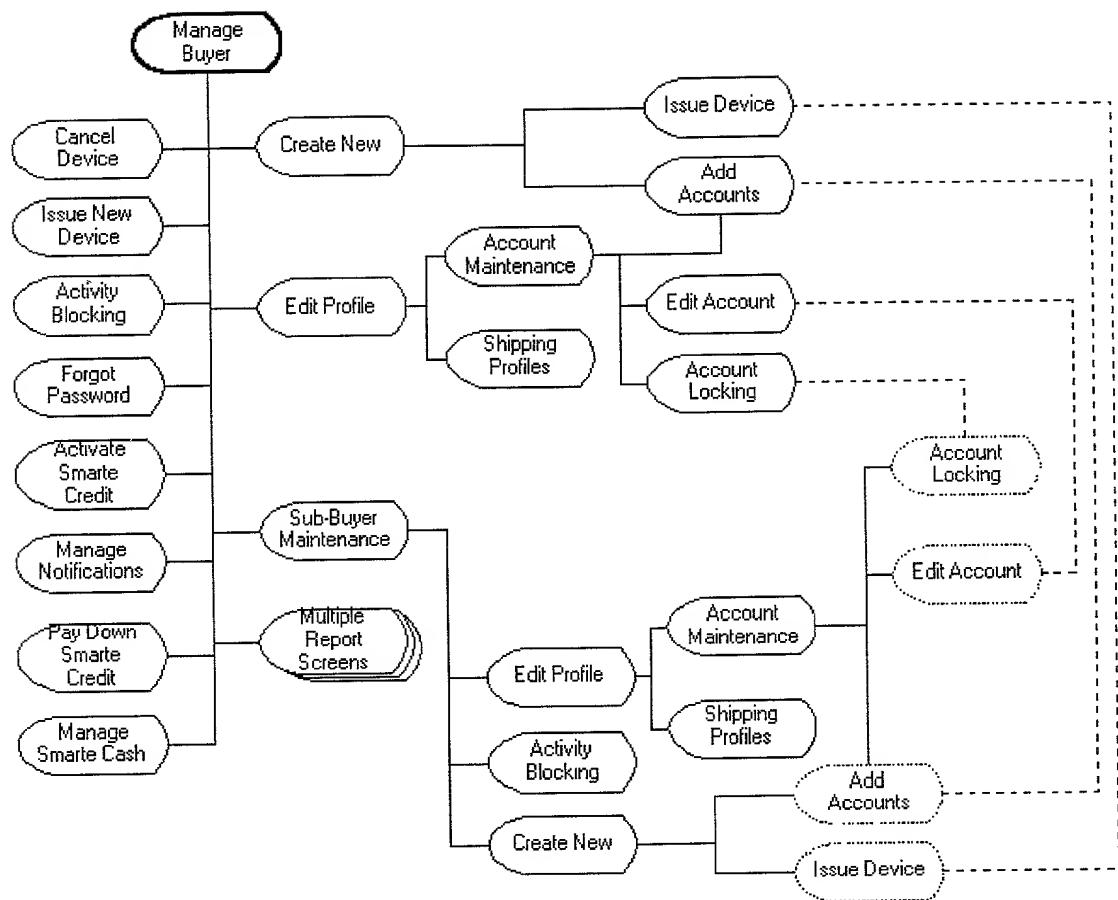
Fig. 21
Administration – Buyer Management Screens
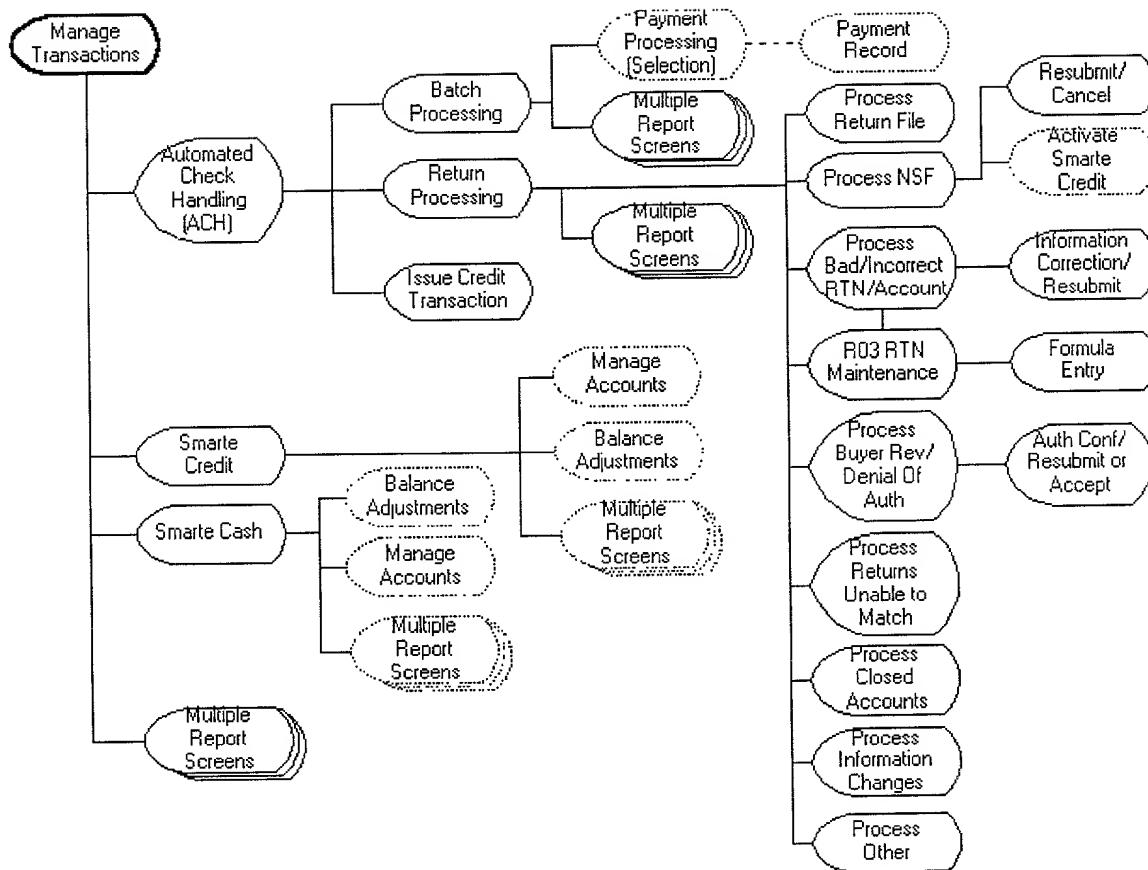
Fig. 22
Administration – Transactions/Payments/Accounts Management Screens

ADMINISTRATION USER SCREEN INTERACTION
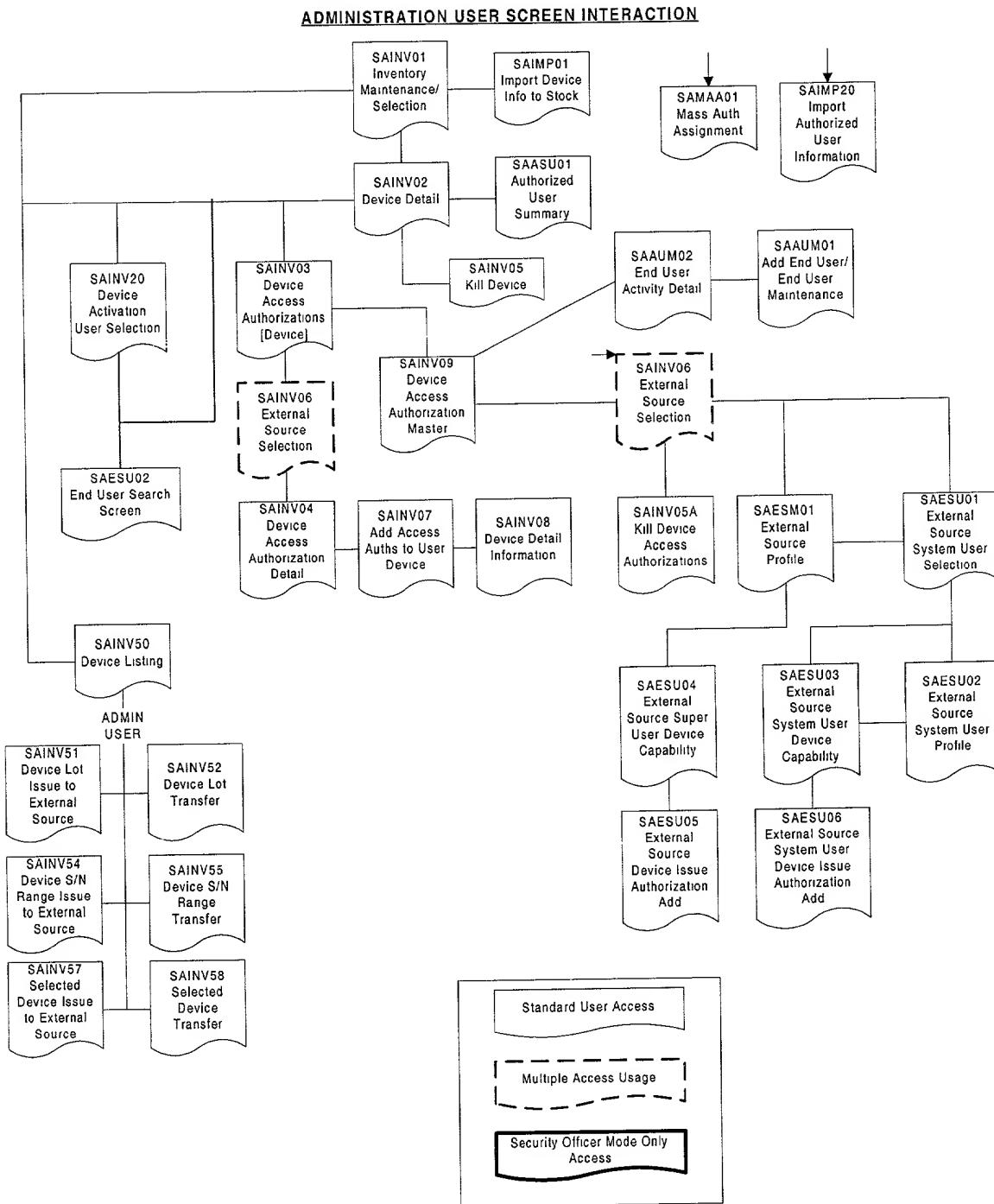
Fig. 23
Authentication

EXTERNAL SOURCE USER SCREEN INTERACTION
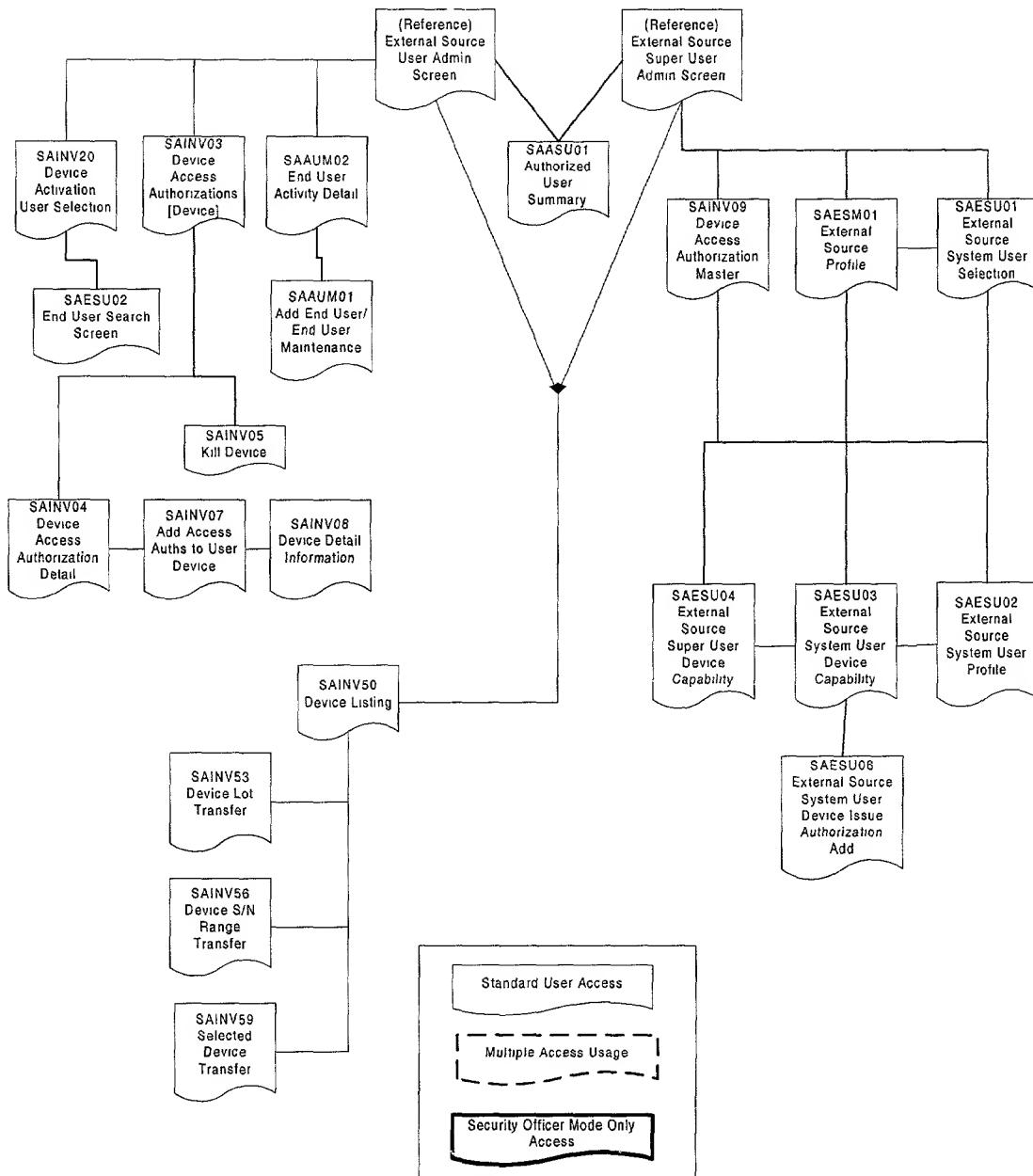
Fig. 24
Authentication

End User Screen Interaction

EUS01
Place Smarte CD
in drive

(Source page)
Login
(User ID/Psswrd)

EUS02
Place Smart Card
in reader

EUS04
Identify Device
Drive

(Reference)
Access Granted .
URL as specified

EUS05
Access NOT
Granted- customer
service info

EUS03
Specify type of
device

EUAS03
Approval, source
link, demo/help
link

EUAS01
New Device
Activation Screen-
general info

EUAS02
Data entry and
activation request

EUAS04
NOT Activated-
customer service
number

EUAS05
Already activated

SAINV05B
Kill Device/
Authorization

—Future Screen—

Fig. 25
Authentication

Fig. 26
System Data Structure

1	Smarte Authentication System Administration Data	51	Accounts Type Specific -- Smarte Credit Card
2	Smarte Authentication User Device Master	52	Account Block Details
2A	Smarte Authentication Device Specific (Smarte CD)	53	Fees and Commission
2B	Smarte Authentication Device Specific (Smart Card)	54	Product Category Master
2C	Smarte Authentication Device Specific (RSA Token)	55	Product Class Master
2D	Smarte Auth Device Specific (Secure Comp. Token)	56	Product Master
3	Smarte Authentication Device Inventory Master	57	Product – Sub Products List
3A	Smarte Auth Device Inventory Specific (Smarte CD)	58	Product – Keywords List
3B	Smarte Auth Device Inventory Specific (Smart Card)	59	Product – Quantity Allocation
3C	Smarte Auth Device Inventory Specific (Smart Card)	60	Notification Codes
3D	SA Device Inventory Specific (Secure Comp. Token)	61	Notification Master
4	Smarte Authentication END User Master	62	Shipment Methods
5	Smarte Authentication Authorization Master	63	Shipment Method
6	Smarte Authentication External Source Master	64	Shipment Method Limits
7	Smarte Authentication External Source Device	65	Shipment Location Limits
8	Smarte Auth External Source User Device Issue Auth	66	Tax Details
9	Smarte Authentication Device Lot Master	67	Seller Order ID Master
10	Smarte Authentication Device Access Log	68	Order Master
10A	Smarte Authentication Device Access Log ARCHIVE	69	Line Items
11	Smarte Authentication Specific System Activity Log	70	Transaction (Common)
12	Smarte Authentication Product Master	71	Transaction (Account Type Specific – Smarte Cash)
13	Smarte Auth External Source Device Issue Authority	72	Transaction (Account Type Specific – Smarte Credit)
14	Smarte Auth External Source/Auth User Cross Ref	73	Transaction (Account Type Specific – Admin)
15	Smarte Auth External Source Device Control Auth	74	Transaction (Account Type Specific – Smarte ACH)
16	Smarte Authentication Device Auth Overrides	75	Transaction – Smarte Credit Loan Record
17	Smarte Authentication ES Based End User Detail	776	Transaction – Smarte Credit Payment Log Reference
18	System Administration Data	77	Order Transaction - Master
19	System Administration Data – Signup	78	Order Transaction - Details
20	System Administration Data – Product	79	Batches
21	System Administration Data – Order	80	Batch Payment Due
22	System Administration Data – Transaction	81	Payment Log Table
23	Identifier Type Master	82	Transaction – Smarte Credit Interest Log Reference
24	Identifier Type Master – List Specific	83	Transaction – Returns
25	Random Question Master	84	FED Ready File – FED File Info Table
26	General Parameters	85	Pay Down Table
27	Holiday Master	86	System Administration Data - TCN
28	Activity Master	87	System Administration Data - BCN
29	Entity Activity Log	88	System Administration Data – Order Transaction
30	Telephone Master	89	System Administration Data – Return Transaction
31	Zip Master	90	Return Transaction - Details
32	State Master	91	Sub Buyer Accounts - Allocation
33	Time Zone Master	92	Chat
34	Sign up Details	93	ISO Account Details
35	User Master	94	Order Batch EXE
36	Identifier Master (User)	95	Shopping Bag Table
37	User Block Details	96	Smarte Credit Late Fee Log
38	Administration Users Master	97	FED Ready File Status
39	FI Master	98	TMP RECORD STORE: Accounts used in Order
40	FI Specific – Banks	99	TMP RECORD STORE: Keyword in Order
41	Seller Master	100	TMP RECORD STORE: Keywords used in Order
42	Buyer Master	101	TMP RECORD STORE: Product Category Path
43	Buyer Parent-Child Relation	102	TMP RECORD STORE: Product Class Order
44	Buyer Shipping Details	103	TMP RECORD STORE: Shop Cart Items
45	ISO Profile	104	TMP RECORD STORE: Search Items
46	Accounts Master	105	TMP RECORD STORE: Activate/Interest Process Flag
47	Accounts Type Specific – Smarte Credit	106	TMP RECORD STORE: MoveMoney Identifier Master
48	Accounts Type Specific – Smarte ACH	107	Product Class Category Master
49	Accounts Type Specific – Smarte Cash	108	Smarte Authentication Product/Device Cross Reference
50	Accounts Type Specific – Admin		

Fig. 27
Key to Fig. 26 System Data Structure

Fig. 28

Fig. 29

Fig. 30

Fig. 31

Processes IAW Std
Seller Software/Web ◄
Page Requirements

Seller's Web Page

STD CHECK-OUT

SMARTE BUY

Sm**arte**
MoveMoney.com
VII
SYSTEM FLOW

[58] Display
Seller's
Certificate

MMC (Smarte
VII) Full Function
E-Shopping Cart
[72] BUY

| SELLER'S SERVER | MMC'S SERVER |

[8] User
Log-In

[59] Retrieves
MMC Profiles/
Requirements for
Seller & Buyer

Smarte
System
Data

Connection to MMC Server
Established Remains OPEN

IF REQUIRED

Device Handling
[User Name Displayed]

Enter Device Code

[60] Buyer
Authentication
using Issued
Credential

[61] Tax and
Shipping Charges
Calculated

[62] Sales
Warnings
(if Any)

[68] Buyer
Adjusts
Shipping
Address

[69] Buyer
Adjusts Payment
Options

[70] Buyer
Adjusts Shipping
Method

[67] Purchase,
Shipping; Tax;
Payment Info
(Defaults on 1st Pass)

[63] Change Ship to Address

[64] Change Pay Options

[65] Change Ship Method

[66] OK

Order Verification
/Summarry Screen

Smarte
System

Transaction Processing
(Specific to Type)

Notifications

Seller Inventory QOH
Verification

Seller System
Update

[73] Generates ORDER

Order Transmitted to MMC System

Connection to MMC System Terminated

[74] IF PURCHASE FROM ADS

Smarte Ads
(if Any)

[75] RETURN TO SELLER'S PAGE

Fig. 32

Seller's Web Page

Seller's form for Payment and Shipment information

SMARTE BUY

This is a button that is added directly to the Seller's page where the Buyer enters their information. Error message if Buyer has not completed Name and shipping address on the Seller's form

Info Transferred from Seller's Form to Plug-In. Buyer Name as entered; Total Amount of Purchase

S*M*arte
MoveMoney.com
VII LIGHT
SYSTEM FLOW

SELLER'S SERVER	MMC'S SERVER

Smarte VII Plug-In

[User Name Displayed Here]

[Purchase Amount Total Dsiplayed]

LOGIN ID:

PASSWORD

LOG IN

< Back

Physical Device Handling

[User Name Displayed Here]

Enter Device/or Enter Device Code

DEVICE CODE:

Verification of Device Data (if Required)

Plugin Passes "Authorization#" back to Sellers Web Page

Seller's Web Page continues as previously programmed, utilizing MMC Authorization number in place of Credit Card

Connection to MMC Server Established Remains OPEN

Passes User Name Login Password to MMC

MMC Order # (Authorization#) Passed back to Plug-In

Connection to MMC System Terminated

Smarte System

Smarte System Data

Validates User Login/ Password/Name

Validates User Login/ Password/Name to Information in System

Validates User has active preferred account to perform ACH transaction from

Generates MMC Ident for Order

Smarte System Generates Transaction/ Order within the Smarte System as required using Buyer's Preference account

Fig. 33

MoveMoney

S.ṃarte

Authentication

SYSTEM FLOW
USER
AUTHENTICATION

OPTION I
USE LIMITED TO SINGLE
KNOWN DEVICE TYPE/
SINGLE DEVICE

Processes IAW Std
External Source
Software/Web
Page Requirements

EXTERNAL SOURCE
Web Page
Triggers MM
Authentication Plugin
following User LOGIN on
Source Server/Page

EXTERNAL SOURCE SERVER	MOVEMONEY SECURITY SERVER

Plugin Receives
passed information
from External
Source Server/Page

MoveMoney
Smarte
Authentication
Plugin

User
Device Read/Info
Entry

Connection Established
User Login information and Device
Information Transferred
Connection Remains Open

System Retrieves/
Validates Information
[External Security
Server Interface As/If
Required dependent
upon device type] as
Required based on
Device Type

Plugin Redirects to
Specified URL (with
passed entry acceptance
string) depending on
Results

Results of ValidationTransferred to Plugin

Connection to MoveMoney System Terminated.

Resultant External
Source Web Page

EXTERNAL
SERVER or
SERVER
APPLICATION

EXTERNAL
SYSTEM
(example: RSA
ACE Server)

Fig. 34

MoveMoney

S·марtе

Authentication

SYSTEM FLOW
USER
AUTHENTICATION
OPTION II
MULTIPLE DEVICE TYPE
USAGE ENABLED/
MULTIPLE USER
DEVICES

EXTERNAL SOURCE SERVER	EXTERNAL SERVER or SERVER APPLICATION
	MOVEMONEY SECURITY SERVER

EXTERNAL SYSTEM (example RSA ACE Server)

Processes IAW Std External Source Software/Web Page Requirements

EXTERNAL SOURCE Web Page Triggers MM Authentication Plugin following User LOGIN on Source Server/Page

Plugin Receives passed information from External Source Server/Page

Connection Established
User Login Information Transferred
Connection Remains Open

System Retrieves/ Validates Information [External Security Server Interface As/If Required dependent upon device type] as Required based on Device Type

Multiple Devices for User ?

YES → User Specifies Device to Use

NO

Device/Information Requirements Transferred to Plugin
"Fixed" Type Device Information Transferred or applicable

Plugin Determines type of Authentication GUI

MoveMoney Smarte Authentication Plugin

User Device Read/ Info Entry

Additional Validation Required — YES

Additional Validation ...tion Transferred

NO

Validation Results transferred back to Plugin

Plugin Redirects to Specified URL (with passed entry acceptance string) depending on Results

Connection to MoveMoney System Terminated

Resultant External Source Web Page

Fig. 35

Existing External Source System

Client System
Login Name
Password Entry
—OK→ Page 2
—BAD→ Error Page

External Source System Plugin Uses Existing Login Name/Password Partial Implementation of Devices to User Base

Client System
Login Name
Password Entry
—OK→ Plug-In
OK
or
Not Found
→ Page 2
—BAD→
BAD→
Error Page

Eexternal Source System Plugin Uses Existing Login Name/Password Complete Implementation of Devices to User Base

Client System
Login Name
Password Entry
—OK→ Plug-In —OK→ Page 2
—BAD→
Bad
or
Not
Found
↓
Error Page

External Source System Plugin Uses Existing Login Name/Existing Optional Univeral Password Partial Implementation of Devices to User Base

Client System
Login Name
Password Entry
OK
or
Bad
Password
Only
→ Plug-In
OK
or Not Found
WHERE
Plugin received
as OK
→ Page 2
Bad ↓
Bad Login
→ Error Page

Fig. 36

External Source System: Plugin Uses Existing Login Name/Existing Optional Univeral
Password: Complete Implementation of Devices to User Base

Client System
Login Name Password Entry

OK or Bad Password Only

Plug-In

OK

Page 2

Bad or Not Found

Bad Login

Error Page

External Source System: Plugin Uses Existing Login Name/NO Password: Complete
Implementation of Devices to User Base

Client System
Login Name ONLY

OK

Plug-In

OK

Page 2

Bad or Not Found

Bad Login Name

Error Page

External Source System: Plugin Uses Existing Login Name/Mandatory Univeral
Password: Complete Implementation of Devices to User Base

Client System
Login Name Password Entry

Valid Client Login ID

Plug-In

OK

Page 2

Bad or Not Found

Bad Login

Error Page

Fig. 37

PLUG-IN INFORMATION/ACTION/ INTERACTION BASIC VARIANTS
[User Authentication]

```
┌──────────────┐  ┌──────────────┐        ┌──────────────┐           ┌──────────────┐
│ Auth Request │  │Source to Handle│      │ Device Types │           │ Authorization │
│Results - Static│ │ Redirection or │      │  Available   │           │Request (Includes│
│String/Plugin to│ │ Dynamic String │      └──────────────┘           │Inherent Request│
│   Redirect   │  └──────────────┘                                    │for available  │
└──────────────┘                                                       │Device Types)  │
                                                                        └──────────────┘
        ┌──────────────┐          ┌──────────────┐      ┌──────────────┐   ┌──────────────┐
        │ Authorization │◄────────│    From      │      │ Source Add   │   │   Device     │
        │   Request     │         │  SA Prime    │      │  End User    │   │ Information  │
        └──────────────┘         │  to Plugin   │      │ Information  │   └──────────────┘
                                  └──────────────┘      └──────────────┘
     ┌──────────────┐                                   ┌──────────────┐
     │    From      │◄──────────◊──────────────────────►│ From Plugin to│
     │   Source     │                                    │   SA Prime   │
     │  to Plugin   │                                    └──────────────┘
     └──────────────┘
            │    ┌──────────────┐
            │    │ Source Add   │
            │    │  End User    │        ┌──────────────┐
            │    │ Information  │        │  End User    │
            │    └──────────────┘        │  Browser     │
            ▼                            │  to Plugin   │
     ┌──────────────┐                    └──────────────┘
     │ Authorization │
     │   Request     │
     └──────────────┘
            │
     ┌──────────────┐
     │Device Utilization│
     │  Option Type  │         ┌──────────────┐      ┌──────────────┐
     └──────────────┘         │ From Plugin to│─────►│ Authorization │
       │        │             │   Source     │       │   Results    │
  ┌────────┐ ┌────────┐       └──────────────┘       └──────────────┘
  │Option I │ │Option II│
  │(Single) │ │(Multiple)│
  └────────┘ └────────┘
```

Fig. 38

MoveMoney

S.Marte
Authentication

SYSTEM FLOW
PRODUCT
AUTHENTICATION
CD MEDIA BASED
DISTRIBUTED
PROGRAMS ONLY

USER LOCAL SYSTEM	EXTERNAL SOURCE SERVER	MOVEMONEY SECURITY SERVER

Distributed Media by Software Manufacturer has been produced and Serialized by MoveMoney from supplied "master" disk

Software has feature disablement until proper registration/ authentication received. This is part of the Registration Programming required on the part of the Software Manufacturer in order to take advantage of this system

USER INITIATES ON-LINE REGISTRATION PROCESS

Connection Established via Internet Browser

Software Mfg. recieves registration (User Entered) information and instructs User to insert original CD into Drive, specifying Access Drive letter

MM Product Authentication Plugin Reads CD via User's Browser and determines authenticity

Connection Established to MMC Security Server.

System Retrieves/ Validates Individual CD Serial Number and Records pertinent data

MoveMoney Smarte Authentication Plugin

MM Product Authentication Plugin Receives Pertinent information from Server

Results of Validation Transferred to Plugin

Connection to MoveMoney System Terminated

Software Mfg.'s Software recieves results of validation and statistical information regarding S/N. Software Mfg can then determine whether or not to issue registration code

USER RECEIVES RESULTS

Results/Registration code or applicability transmitted

Fig. 39

CD Authentication Flow

NOTE: Information, such as Default Drive, etc. May have been transferred via previous connection, depending upon Option Type and utilization	CD Read of S/N File Content, Volume ID Label (VIDL Optional)

EXTERNAL SOURCE SERVER

MOVEMONEY SECURITY SERVER

Able to locate CD in Default Drive?

NO → User Requested to Input Drive Designation from where CD is to be read from

User Enters Drive Letter, as well as whether to change personal Default

YES

[If Enabled] Attempts to Read Target Defect File and Draw Appropriate CRC Error

Correct Error Received ?

NO — Acceptance/ Rejection Determination

YES

Rejection and Access Attempt Info Passed. No Return Info Taken

If Connection NOT Yet established, Connection Established to MMC Security Server. Transmission of User Login/Password, and read CD Data

System Retrieves/ Validates Individual CD Data and Records pertinent data. [Statistical]

Rejection Notification Passed

MM Product Authentication Plugin Receives Pertinent information from Server, and combines with results [if enabled] of Defect File Read Attempt

Results of Validation Transferred to Plugin

Connection to MoveMoney System Terminated

Acceptance/ Rejection Determination

Fig. 40

Smart Card Authentication Flow

NOTE: Information, such as Default Drive, etc. May have been transferred via previous connection, depending upon Option Type and utilization

Device Reads Smart Card Content

EXTERNAL SOURCE SERVER

MOVEMONEY SECURITY SERVER

Able to locate Smart Card Device?

NO — User Requested to Input "Drive"/Device Designation from where Smart Card is to be read from

User Enters "Drive"/Device Letter, as well as whether to change personal Default

YES

Plug-in "Reads" Device Information

Smart Card Previously Activated ?

NO — Refer to Authentication Requirements - Note: If card has not been "activated", then Access Authorization is Rejected.

YES

Plug-in "Writes" Device Information and Re-Reads; Re wtles original information

Passes "Rejection" as Invalid Smarte Card

If Connection NOT Yet established, Connection Established to MMC Security Server. Rejection Information Passed to System

NO — Valid Smart Card ?

YES

If Connection NOT Yet established, Connection Established to MMC Security Server Transmission of User Login/Password, and read CD Data

System Retrieves/ Validates Individual CD Data and Records pertinent data. [Statistical]

Acceptance/ Rejection Determination

Rejection and Access Attempt Info Passed No Return Info Taken

Rejection Notification Passed

MM Product Authentication Plugin Receives Pertinent information from Server

Results of Validation Transferred to Plugin

Acceptance/ Rejection Determination

Connection to MoveMoney System Terminated

Fig. 41

3rd Party Device/Server/System Authentication Flow

EXTERNAL SOURCE SERVER

MOVEMONEY SECURITY SERVER

At this point, the Authentication Plugin has already received information stating the type of device and the requirement for additional Authentication Pass. Note that in the case where indicated that a SINGLE TYPE of device is utilized, this information is ALREADY known. At this point, User is presented with Data Entry Screen

User Enters Device Information (Pin/Code/etc.)

If Connection NOT Yet established, Connection Established at this point to MMC Security Server Transmission of User Login/Password and entered Device Data

System Retrieves/Validates Information [External Security Server Interface As/If Required dependent upon device type] as Required based on Device Type

Validation Results transferred back to Plugin

MM Product Authentication Plugin Receives Pertinent Information from Server

Sends Aceept/Reject

EXTERNAL SERVER or SERVER APPLICATION

Sends Applicable Data

Connection to MoveMoney System Terminated

Acceptance/Rejection Determination

EXTERNAL SYSTEM (example. RSA ACE Server)

Fig. 42

Fig. 43

Inventory

Devices are issued
from Inventory to an External Source

To Issue includes

Device Ownership

- Complete device Control Authority
- The ability to Grant any or all Device
  Control Authority to another External
  Source
- The ability to Transfer Device Ownership

External Source

Transfer
Device Ownership to a single
External Source

To Transfer includes

Complete Device Control
Authority

The ability to Grant any or all
Device Control Authority to other
External Sources

The ability to Transfer Device
Ownership

The revocation of any Granted
Device Control Authority

OR

Grant
Any or all Device Control
Authority to multiple External
Sources (while retaining Device
Ownership)

To Grant includes includes any
or all of the following

Device Activation

Device Attachment

Authorization Attachment

Authorization Removal

Access Usage Override

Only One External Source

One or more External Sources

Fig. 44

Basic "Tier" Structure of Transactions/Transaction Relationships

Inititating
Transaction
[Top level]

Internal
Transactions

External
Transactions

Fed Ready File

ACH Batch

Product Class

ACH Transactions

Fig. 45

```
                          ┌──────────────────────────┐
                          │   Transaction Initiation  │
                          └──────────────────────────┘
```

Transaction Initiation #1 Buyer Order	Transaction Initiation #2/#3 Smarte Credit Activation	Transaction Initiation #4 Buyer initiated Transfer Against Another Account	Transaction Initiation #5 Hard Account Adjustment transfer	Transaction Initiation #6 MoveMoney Transfer of Funds (Payment)	Transaction Initiation #7 Return [ACH] Initiated Transaction

Fig 49

Fig 51-56

Smarte Credit Processing Specific	Transaction Transfer Specific	Hard Account Adjustment Specific		ACH Return Specific Processing

Fig 50

Fig 48

Determination of "Required Transactions"

Fig 47

Determination of Fees/ Commissions

Fig 58

Trans Specific Generation

ACH

Internal

Smarte Cash

Smarte Credit

[Transaction Initiation #1 ONLY]
Update User Activity Logs
Calculation for Abnormal Activity

Activity Logging
(Specifics TBD)

END

Fig. 46

Determination of Fees/Comms (Order Level)

Smarte Pay Splitting? —YES→ Determination of "Split" Factors

NO

Retrieve Applicable Fee/ Commission Records

Smarte Pay Splitting? —YES→ Modify applicable Fees/ Comms by Determined Factor

NO

Internal Type Trans ? —YES→ Generate Internal Transaction for Fee/Commission amount to transfer funds

—NO→ Can existing external trans be modified to cover applicable fee/ commission?

—YES→ Modify applicable external transaction by amount of Fee/ Comm

—YES→

External Trans Type —OTHER→ TBD

ACH

Generate ACH Trans Ref: Figure 58

Fig. 47

Determination of Transaction Generation Requirements → **Initiation Transaction Type**

Transactions are NOT generated at this point. This Figure serves only to provide the Subsequent Transactional Generation Requirements based on the initiating transaction. Note that if more than ONE initiating Transaction is involved. The requirements listed in this Figure are applicable to EACH of the initiating Transactions

---

Smarte Cash Purchase

Internal Fund Transaction for Amount of Smarte Cash Reduction to Buyer's Smarte Cash Account

Internal Fund Transfer Transaction for Amount of Smarte Cash Purchase from Smarte Cash Account to Sellers "holding Account" (REF from Product Class)

ACH Transaction to withdraw money from DRAW Account

Opposing ACH Transaction to MMC Pool Account (REF from Product Class)

Smarte Credit Activation

Internal Fund Transaction for Amount of Smarte Credit Increase Buyer's Smarte Credit Account

NSF Prior? — YES ONLY

ACH Transaction to withdraw money from Smarte Credit DRAW Account

Opposing ACH Transaction to MMC Pool Account (REF from Product Class)

Smarte Credit Paydown (Cash to Sponsoring FI)

Internal Fund Transfer Transaction for Amount of Smarte Credit Decrease Buyer's Smarte Credit Account Total

Smarte Cash

Internal Fund Transaction for Amount of Smarte Cash Reduction to Buyer's Smarte Cash Account

ACH Transaction to withdraw money from Smarte Cash DRAW Account

---

Smarte Credit Paydown (Transfer from another Account)

Internal Fund Transfer Transaction for Amount of Smarte Credit Decrease Buyer's Smarte Credit Account Total

From Account Type?

Smarte ACH

ACH Transaction to withdraw money from Buyer ACH Account

Opposing ACH Transaction to MMC Pool Account (REF from Product Class)

Internal Fund Transfer Transaction for Amount of Smarte Credit Reduction to Sponsoring FI's "holding Account"

Smarte ACH Buyer Purchase

Internal Fund Transfer Transaction for Amount of Smarte ACH Purchase to Sellers "holding Account" (REF from Product Class)

ACH Transaction to withdraw money from Buyer's Smarte ACH Account

Opposing ACH Transaction to MMC Pool Account (REF from Product Class)

Buyer Initiated Transfer - Smarte Cash to Other Buyer Smarte Cash

Internal Fund Transaction for Amount of Smarte Cash Reduction to Sending Buyer's Smarte Cash Account

Internal Fund Transaction for Amount of Smarte Cash Increase to Receiving Buyer's Smarte Cash Account

ACH Transaction to MMC Pool Account (REF from Product Class)

Opposing ACH Transaction to Receiving Smarte Cash Draw Account

---

Buyer Initiated Transfer - Smarte ACH to own Smarte Cash

Internal Fund Transaction for Amount of Smarte Cash Increase to Buyer's Smarte Cash Account

ACH Transaction to withdraw money from Buyers Applicable ACH Account

Opposing ACH Transaction to MMC Pool Account (REF from Product Class)

Internal Fund Transfer Transaction for Amount of Smarte Cash Increase to Sponsoring FI's "holding Account"

MoveMoney Transfer of Funds (Payment)

Internal Fund Transfer Reducing Amount in applicable Entity "Holding Account"

ACH Transaction to withdraw money from MMC Applicable ACH Account

Opposing ACH Transaction to Applicable Entity ACH Account

ACH Return Received

Required Transactions are strictly dependant upon the Type of Return Received. Some Returns, for example require NO additional Transactions while others require multiple transaction to occur. In addition, the Return of an ACH is also dependant upon whether or Not Smarte Credit is activated. Refer to Figures 51 through 56 for specific Return Process Requirements

---

Fig. 48

Smarte Credit Initiation Processing

SCENARIO #1
[IDEAL]
Bank Intercepts
NSF Transaction
Electronically and
Does NOT Reject as
NSF

SCENARIO #2
Bank FAILS to
Intercept NSF
Transaction
Rejected as NSF

Bank Flags
Overage Against
Specific Account
in Smarte System

Smarte Credit
Activation in
System

Return to Figure
46

Hard Loan Report
Document
Generated

Hard Loan Report
Document Generated
for Bank

Buyer NSF
Transaction
"nullified" in
ACHieve
System

Fig. 49

Buyer Initiated Transfer

Buyer Selects
Account to
transfer From

Buyer Enters
Amount to
Transfer

Pay
Down Against
Smarte Credit
Account?

—NO

—YES—

System
Validations

System
Validations

Buyer Enters
MMC Account
Ident to transfer to

Buyer Selects
Account to Pay
Down Against

Information on
Account to transfer
FROM, the amount
displayed on Screen
to Buyer

Superficial Information on
Account to transfer TO, as
well as OWNER of Acocunt
to Transfer TO is displayed
on the Screen.

◄—NO—

Transfer
TO account for
SAME
Buyer?

YES

NO

Additional Data Field for
"email message" to
recipient also included on
Screen

Transaction
Generated
Based on
requirements
listed in Figure
48

◄—

Fig. 50

```
                    ┌─────────────────────┐
                    │  Return Processing  │
                    └─────────────────────┘
                              │
                        ┌──────────┐
                        │  Start   │
                        │  Return  │
                        │  Process │
                        └──────────┘
                              │
                    ┌─────────────────┐
            ┌──────▶│  User Selects   │◀──────────────┐
            │       │   Next Option   │               │
            │       └─────────────────┘               │
            │         │        │        │             │
            │         ▼        ▼        ▼             │
            │    ┌────────┐ ┌────────┐ ┌────────┐     │
            │    │ [101]  │ │[100]   │ │ [104]  │     │
            │    │Process │ │ Exit   │ │Process │     │
            │    │Return  │ │ Return │ │Returns │     │
            │    │ File   │ │Process.│ │        │     │
            │    └────────┘ └────────┘ └────────┘     │
            │         │                     │          │
            │         ▼                     ▼          │
            │    ┌────────┐           ┌────────┐       │
            │    │ [101]  │           │ [105]  │◀──┐   │
            │    │Select  │           │Select  │   │   │
            │    │Return  │           │Return  │   │   │
            │    │ File   │           │ Type   │   │   │
            │    └────────┘           └────────┘   │   │
            │         │                     │      │   │
            │         ▼                     ▼      │   │
            │    ┌────────┐           ┌────────┐   │   │
            │    │ [102]  │           │ [106]  │◀─┐│   │
            │    │Select  │           │Select  │  ││   │
            │    │Return  │           │Return  │  ││   │
            │    │ File   │           │Record  │  ││   │
            │    │Process.│           └────────┘  ││   │
            │    │Options │                │      ││   │
            │    └────────┘                ▼      ││   │
            │         │              ┌────────┐   ││   │
            │         ▼              │ [107]  │   ││   │
            │    ┌────────┐          │Process │───┘│   │
            │    │ [103]  │          │Record  │    │   │
            │    │ Start  │          └────────┘    │   │
            │    │Return  │               │        │   │
            │    │ File   │               │        │   │
            │    │Import/ │               │        │   │
            │    │Process.│               │        │   │
            │    └────────┘               │        │   │
            │         │                   │        │   │
            │         ▼                   │        │   │
            │    ┌────────┐               │        │   │
            │    │ User   │               │        │   │
            └────│Selects │               │        │   │
                 │ Next   │               │        │   │
                 │Option  │               │        │   │
                 └────────┘               │        │   │
                              ┌────────┐  │    ┌────────┐
                              │ [108]  │◀─┘    │ Report │
                              │Reports │◀─────▶│        │
                              └────────┘       └────────┘
```

Fig. 51

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Fig. 52

Fig. 53

[130] Process Selected Closed Account Trans

Return Processing

Automated Processing?

—YES—

NO

[131] User to Verify Entry Information

Information Correct as Entered?

—YES→

[132] Flag Account and Auths. as closed

NO

[133] Data Correction Screen

[134] Add Info to Negative Database

[135] User Enters Corrected Data

[136] Update Smarte System Entities

Corrected Resubmittal Transaction Required Return to Figure 46

[138] Close Current Incorrect Transaction

[139] Update Smarte System Entities

Multiple or Single Trans Processing?

—MULTIPLE→

Another Transaction?

SINGLE

NO

End Processing Wait for User's Next Selection

Fig. 54

[160] Process Information Change

Return Processing

Automated Processing?

NO

[161] User to Confirm Changed Information

YES

Information Confirmed?

NO

User Determines Ignore?

NO

[163] Transaction Held

YES

YES

[162] Edit System Information as Required

[164] Return Closed with No Changes to System

YES

Buyer Death Notification?

YES

[165] Update ACHieve System Entities

NO

Multiple or Single Trans Processing?

SINGLE

End Processing Wait for User's Next Selection

MULTIPLE

NO

Another Transaction?

Fig. 55

[170] Process Buyer Denial/Auth Revocation

Return Processing

[171] User to Confirm Authorization

[172] Transaction Held

Authorization Confirmed?

—NO→

Hold for Further Evaluation?

YES

YES

ACH Return Denial Transaction Required Return to Figure 46

NO

[173] Close Transaction - Update Neg Database

YES

[175] Update Smarte System Entities

Multiple or Single Trans Processing?

—SINGLE—

MULTIPLE

End Processing Wait for User's Next Selection

Another Transaction?

—NO—

Fig. 56

Fig. 57

ACH Transaction Generation

DETERMINATION
OF ACH SPECIFIC
RTN IF APPLICABLE

Note: R03 Formula considerations are not applicable at ACH Generation, as all Buyer ACH accounts will be from partner FI's, and other ACH accounts extremely limited within the system to where they can be managed on a case by case basis at this point.

[90] ACH
TRANSACTION IS
GENERATED

[91] TRANSACTION
IS HELD UNTIL
RELEASE DATE

Admin User
initiates ACH
Batch
Processing

[95] ACH
TRANSACTION IS
BATCHED AND FED
READY FILE
CREATED

[96] BATCH FILE
PROCESSED TO
FEDERAL
RESERVE

SYSTEM RECORDS
UPDATED

FED READY FILE
TRANSFERRED/
TRANSMITTED TO
ODFI FOR
PROCESSING

Fig. 58

Fig. 59

R03 RTN SPECIFICATION

<u>UNRECOGNIZED RTN</u>

{L11 - RTN SHOWN HERE}

<u>Select Actual RTN from Existing Banks in ACHieve System</u>

DBList2

|◀ ◀ Banks by RTN Asc ▶ ▶|

● This is a STANDARD Replacement (ACH ONLY) RTN for this Bank

● This is a CALCULATED RTN, that varies for this Bank for each individual Transaction

Cancel - Return to Previous Screen

Fig. 60

Fig. 61

CALCULATED RTN DEFINITION

UNRECOGNIZED RTN
{L14 - RTN SHOWN HERE}

Select Calculated RTN Digit Position to Define

Current RTN Calulation Definition

● Position 1   ● Position 5
● Position 2   ● Position 6
● Position 3   ● Position 7
● Position 4   ● Position 8
(Position 9 is a Check Digit ONLY)

Position 1: Unknown/Not Defined
Position 2: Unknown/Not Defined
Position 3: Unknown/Not Defined
Position 4: Unknown/Not Defined
Position 5: Unknown/Not Defined
Position 6: Unknown/Not Defined
Position 7: Unknown/Not Defined
Position 8: Unknown/Not Defined

Return to Previous Screen

Fig. 62

CALCULATED RTN DEFINITION

UNRECOGNIZED RTN
{L14 - RTN SHOWN HERE}

Select Calculated RTN Digit Position to Define   Current RTN Calulation Definition

Position 1: Unknown/Not Defined
Position 2: Unknown/Not Defined
- Position 1   - Position 5   Position 3: Unknown/Not Defined
- Position 2   - Position 6   Position 4: Unknown/Not Defined
- Position 3   - Position 7   Position 5: Unknown/Not Defined
- Position 4   - Position 8   Position 6: Unknown/Not Defined
(Position 9 is a Check Digit ONLY)   Position 7: Unknown/Not Defined
                                           Position 8: Unknown/Not Defined

Define/Redefine Position

Return to Previous Screen

Fig. 63

CALCULATED RTN DEFINITION

UNRECOGNIZED RTN
{L14 - RTN SHOWN HERE}

Select Calculated RTN Digit Position to Define　　**Current RTN Calulation Definition**

- ● Position 1　　● Position 5
- ● Position 2　　● Position 6
- ○ Position 3　　● Position 7
- ● Position 4　　● Position 8

(Position 9 is a Check Digit ONLY)

Position 1: Unknown/Not Defined
Position 2: Unknown/Not Defined
Position 3: Unknown/Not Defined
Position 4: Unknown/Not Defined
Position 5: Unknown/Not Defined
Position 6: Unknown/Not Defined
Position 7: Unknown/Not Defined
Position 8: Unknown/Not Defined

Define Position 3

- ● Defined by Parent RTN Position
- ● Defined by Parent Account Position
- ● Defined by Constant Value
- ● Unknown or F/I Internal Calculation

Cancel

Fig. 64

CALCULATED RTN DEFINITION

UNRECOGNIZED RTN
{L14 - RTN SHOWN HERE}

Select Calculated RTN Digit Position to Define

- Position 1
- Position 2
- Position 3
- Position 4
- Position 5
- Position 6
- Position 7
- Position 8

(Position 9 is a Check Digit ONLY)

Current RTN Calulation Definition

Position 1: Unknown/Not Defined
Position 2: Unknown/Not Defined
Position 3: Unknown/Not Defined
Position 4: Unknown/Not Defined
Position 5: Unknown/Not Defined
Position 6: Unknown/Not Defined
Position 7: Unknown/Not Defined
Position 8: Unknown/Not Defined

Define Position 3

- Defined by Parent RTN Position
- Defined by Parent Account Position
- Defined by Constant Value
- Unknown or F/I Internal Calculation

Save Definition

Cancel

Fig. 66

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CALCULATED RTN DEFINITION

UNRECOGNIZED RTN
{L14 - RTN SHOWN HERE}

Select Calculated RTN Digit Position to Define

Current RTN Calulation Definition

Position 1: Unknown/Not Defined
Position 2: Unknown/Not Defined
Position 3: Unknown/Not Defined
Position 4: Unknown/Not Defined
Position 5: Unknown/Not Defined
Position 6: Unknown/Not Defined
Position 7: Unknown/Not Defined
Position 8: Unknown/Not Defined

- ● Position 1   ● Position 5
- ● Position 2   ● Position 6
- ○ Position 3   ● Position 7
- ● Position 4   ● Position 8

(Position 9 is a Check Digit ONLY)

Define Position 3

Enter Defining Value

- ○ Defined by Parent RTN Position
- ● Defined by Parent Account Position
- ● Defined by Constant Value
- ● Unknown or F/I Internal Calculation

Save Definition

Cancel

Fig. 67

CRITICAL ACTIVITY CALCULATION VALUES			
FIELD NAME	**TYPE**	**LEN**	**DESCRIPTION**
AVGNOFBUYS	DOUBLE	---	AVG # OF BUYS PER ACTIVE DAY (ACTIVE ONLY)
AVGNOFWBUYS	DOUBLE	---	AVG # OF BUYS PER ACTIVE WEEK (ACTIVE ONLY)
TOTBUYS	LONG	---	TOTAL # OF BUYS
TOTACTBUYS	CURRENCY	---	TOTAL AMOUNT OF BUYS TO DATE
AVGNOFBUYA	CURRENCY	---	AVG TOTAL AMOUNT OF BUYS PER DAY (ACTIVE ONLY)
AVGNOFWBUYA	CURRENCY	---	AVG TOTAL AMOUNT OF BUYS PER WEEK (ACTIVE ONLY)
TDTOTENTSBY	INTEGER	---	TOTAL NUMBER OF BUYS FOR CALC DATE
TDTOTENTSBYD	CURRENCY	---	TOTAL AMOUNT OF BUYS FOR CALC DATE
TWTOTENTSBY	INTEGER	---	TOTAL NUMBER OF BUYS FOR CALC DATE WEEK
TWTOTENTSBYD	CURRENCY	---	TOTAL AMOUNT OF BUYS FOR CALC DATE WEEK
TOTBDS	LONG	---	TOTAL NUMBER OF ACTIVE BUY DAYS
TOTBWS	LONG	---	TOTAL NUMBER OF ACTIVE BUY WEEKS
CALCDATE	DATE	---	CURRENT CALCULATION DATE
CALCDATEW	DATE	---	CURRENT CALCULATION DATE (for week calculations)
DEVDTRGGRB	DOUBLE	---	DAILY DEVIATION % AT WHICH BUYER IS WARNED (SELF SET BY BUYER) – PARENT BUYERS ALSO NOTIFIED
DEVDTRGGRW	DOUBLE	---	DAILY DEVIATION % AT WHICH MMC/APPLICABLE BANK IS NOTIFIED (IF TRIGGER SET) OF ABNORMAL ACTIVITY. BUYER/PARENT BUYER ALSO WARNED
DEVDTRGGRS	DOUBLE	---	DAILY DEVIATION % AT WHICH BUYER ACCOUNT IS SUSPENDED PENDING VERIFICATION OF - METHOD: TBD
DEVWTRGGRB	DOUBLE	---	WEEKLY DEVIATION % AT WHICH BUYER IS WARNED (SELF SET BY BUYER) – PARENT BUYERS ALSO NOTIFIED
DEVWTRGGRW	DOUBLE	---	WEEKLY DEVIATION % AT WHICH MMC/APPLICABLE BANK IS NOTIFIED (IF TRIGGER SET) OF ABNORMAL ACTIVITY. BUYER/PARENT BUYER ALSO WARNED
DEVWTRGGRS	DOUBLE	---	WEEKLY DEVIATION % AT WHICH BUYER ACCOUNT IS SUSPENDED PENDING VERIFICATION OF - METHOD: TBD

Fig. 68

Accounts Type Specific – Smarte Credit
Table Name : MMC_ACC_SMARTE_CREDIT

MMC_ACC_ID	VARCHAR(20)	NN	MMC Account ID
MMC_ID	VARCHAR(20)	NN	MMC_ID of user
MMC_FI_HOLD_ACC_ID	VARCHAR(20)	NN	Holding Account of FI in MMC. (Admin Account of FI)
MMC_ACH_ACC_ID	VARCHAR(20)		ACH Account ID tied to the MMC_ACC_ID
MMC_SPON_FI _ID	VARCHAR(20)		MMC Account ID of the Sponsoring FI
NEXT_LOAN_NUM	INT		Latest Loan Number
TOTAL_AMT	MONEY	NN	Total Amount of Smarte Credit extended by Bank Against this Account
CUR_BAL	MONEY	NN	Current Balance
BLOCKED_AMOUNT	MONEY		Blocked Amount
INT_CAL_DELAY	INT		Number of Days to delay Calculation of Interest
INT_RATE	FLOAT	NN	Default Interest Rate
ACT_FEE_CHARGE	MONEY		Fees / Charge for Activation
TAX_YEAR	INT		Four Digit Calendar Year. – Indicates current year for which interest calculations are being maintained
INT_PAID_CUR_YEAR	MONEY	NN	Total Amount of Interest Paid during Current Calendar Year
INT_PAID_PREV_YEAR	MONEY	NN	Total Amount of Interest Paid during Previous Calendar Years
PAY_DUE_DATE	INT	NN	Day of Month Payment Due
MIN_INT_CHARGE	MONEY		Minimum Interest Charge Allowed
MIN_MON_AMT_DUE	MONEY		Minimum Monthly Amount Due
DEF_PER_BAL_DUE	FLOAT		Default Percentage for Total Balance Due
FI_ACC_REF	VARCHAR(50)		FI Internal Reference for Account
PER_LATE_FEE	FLOAT		Percentage of Balance to Calculate Late Fee from
FLAT_RATE_LATE_FEE	MONEY		Flat Rate to Calculate Late Fee
MAX_FLAT_LATE_FEE	MONEY		Maximum Flat Rate to Calculate Late Fee
WAIVE_NSF_FEE	CHAR(1)		Yes / No
FI_COMMENTS	VARCHAR(500)		Comments entered by FI
STATUS	CHAR(1)		Status
NEXT_PAY_DUE_DATE	DATE/TIME		This is the NEXT calculated date that Payment is Due By.
NEXT_PAYDUE_AMOUNT	MONEY		This is the Amount (Current Balance) remaining on minimum amount remaining for Buyer to Pay on this Account prior to NEXT_PAY_DUE_DATE
LFC_CARRYOVER_BAL	MONEY		This is the amount remaining for the Buyer to Pay during this specific pay period.
LFC_YEAR	INT		This is the current Calculation YEAR for Late Payments
LF_PAID_CUR_YEAR	MONEY	NN	Total Amount of Late Payments Paid during Current Calendar Year
LF_PAID_PREV_YEAR	MONEY	NN	Total Amount of Late Payments Paid during Previous Calendar Years

Fig. 69

Transaction – Smarte Credit Loan Record
Table Name : MMC_TRAN_SMARTE_CREDIT_LOAN

MMC_ACC_ID	VARCHAR(20)	NN	MMC Account ID (Smarte Credit Account Only)
MMC_ACC_LOAN_ID	VARCHAR(23)		Concatenation of Smarte Credit Account ID and Next Loan Number (Padded with zeros) of activation no (000-999).
NEXT_PAY_NUM	INT		Next Sequential Payment Number to Use within Payment Log Data Table
CUR_BAL	MONEY	NN	Current Balance
NEXT_INT_CAL_DATE	DATETIME		Next Interest Calculation Date
LAST_INT_CAL_DATE	DATETIME		Last Date Interest Calculated
ORG_INT_RATE	FLOAT	NN	Original - Monthly Interest Rate
CUR_INT_RATE	FLOAT	NN	Current - Monthly Interest Rate
LOAN_ACTIVATE_DATE	DATETIME		Loan Activated Date
FI_LOAN_REF	VARCHAR(50)		Individual FI's Reference Number for this Loan
TOT_INT_CHARGED	MONEY		Total Interest Charged to Date against this Loan
ORG_LOAN_AMT	MONEY	NN	Original Loan Amount
LOAN_BALANCE	MONEY		
LAST_INT_CHARGED	MONEY		Interest Charged in Last Calculation Period
ACT_FEE_CHARGED	MONEY	NN	Fee Added to Balance for Activation
LOCKED_INT_ID	CHAR(1)		
MMC_TRAN_ID	VARCHAR(20)		MMC Transaction ID
MMC_TRAN_NO	INT		MMC Transaction No.
MMC_TRAN_DATE	DATETIME		MMC Transaction Date
TOTAL_TRAN_AMT	MONEY		Total Transaction Amount
TOT_LFC_CHARGED	MONEY		Total Late Payment Fees Charged to Date against this Loan

Fig. 70

Smarte Credit Late Fee Log
Table Name : MMC_SMARTE_CREDIT_LF_LOG

|			
MMC_ACC_ID	VARCHAR(20)	NN	MMC Account ID (Smarte Credit Account Only)
MMC_ACC_LOAN_ID	VARCHAR(23)	NN	Concatenation of Smarte Credit Account ID and Next Loan Number (Padded with zeros) of activation no (000-999). This specifically refers to the Individual LOAN to which the Late Fee was attached.
LF_APP_DATE	DATETIME		System Date where Late Fee Applied
LF_AMOUNT	MONEY		Amount of Late Fee Applied
LFC_CARRYOVER	MONEY		This is the amount remaining for the Buyer to Pay during this specific pay period at the time the Late Fee was applied.

Fig. 71

Retrieve Records where
NEXT_PAY_DUE_DATE <=
Current System Date

MMC_ACC_
SMARTE_CREDIT

If
(FLAT_RATE_LATE
_FEE +
(PER_LATE_FEE *
CUR_BAL)) <
MIN_MON_AMT_DU
E then Minimum Late
Fee Used

Use Minimum Late Fee?

NO

YES

Begin Loop

NEXT_PAYDUE_AMOUNT =
NEXT_PAYDUE_AMOUNT +
MIN_MON_AMT_DUE -
LFC_CARRYOVER_BAL

NEXT_PAYDUE_AMOUNT =
NEXT_PAYDUE_AMOUNT +
FLAT_RATE_LATE_FEE +
(PER_LATE_FEE * CUR_BAL)) -
LFC_CARRYOVER_BAL

Is
NEXT_PAYDUE_AMOUNT
> 0

NO

YES

If
(FLAT_RATE_L
ATE_FEE +
(PER_LATE_FE
E * CUR_BAL))
<
MIN_MON_AM
T_DUE then
Minimum Late
Fee Used

Is NEXT_PAYDUE_AMOUNT<0

YES

NO

Retrieve OLDEST ACTIVE
Smarte Loan Record for This
Account

MMC_TRAN_
SMARTE_CREDIT_L
OAN

LFC_CARRYOVER_BAL =
NEXT_PAYDUE_AMOUNT * (-1)

NEXT_PAYDUE_AMOUNT = 0

NO

Use Minimum Late Fee?

YES

LFC_CARRYOVER_BAL = 0

(32) CUR_BAL = (32)
CUR_BAL +
MIN_MON_AMT_DUE

(32) CUR_BAL = (32) CUR_BAL
+ FLAT_RATE_LATE_FEE +
(PER_LATE_FEE * CUR_BAL))

If
YEAR(NEXT
_PAY_DUE_
DATE) <>
LFC_YEAR,
then New LF
Calc Year

New LF Calc
Year ?

YES

TOT_LFC_CHARGED
=TOT_LFC_CHARGED
+ MIN_MON_AMT_DUE

TOT_LFC_CHARGED
=TOT_LFC_CHARGED +
FLAT_RATE_LATE_FEE +
(PER_LATE_FEE * CUR_BAL))

NO

LF_PAID_PREV_YEAR =
LF_PAID_CUR_YEAR

(61) CUR_BAL = (61)
CUR_BAL +
MIN_MON_AMT_DUE

(61) CUR_BAL = (61) CUR_BAL
+ FLAT_RATE_LATE_FEE +
(PER_LATE_FEE * CUR_BAL))

LF_PAID_CUR_YEAR = 0

NEXT_PAYDUE_AMOUNT =
NEXT_PAYDUE_AMOUNT +
MIN_MON_AMT_DUE -
LFC_CARRYOVER_BAL

NEXT_PAYDUE_AMOUNT =
NEXT_PAYDUE_AMOUNT +
FLAT_RATE_LATE_FEE +
(PER_LATE_FEE * CUR_BAL)) -
LFC_CARRYOVER_BAL

LFC_YEAR = Current Year

Is NEXT_PAYDUE_AMOUNT<0

YES

Use Min Late Fee?

LFC_CARRYOVER_BAL =
NEXT_PAYDUE_AMOUNT * (-1)

NO

YES

NEXT_PAYDUE_AMOUNT = 0

NO

LFC_CARRYOVER_BAL = 0

LF_PAID_CUR_YEAR =
LF_PAID_CUR_YEAR +
MIN_MON_AMT_DUE

LF_PAID_CUR_YEAR =
LF_PAID_CUR_YEAR +
FLAT_RATE_LATE_FEE +
(PER_LATE_FEE *
CUR_BAL))

Set NEXT_PAY_DUE_DATE =
NEXT_PAY_DUE_DATE + 1
Month

End Loop

Fig. 72

Table: Batch Payment Due

BCN	VARCHAR(20)	NN	Batch Control Number
BATCH_ENTITY	VARCHAR(20)		MMC ID of Entity to make Payment To
PAY_ACC_TO	VARCHAR(20)		MMC ID of Account to make Payment To
PAY_ACC_FROM	VARCHAR(20)		MMC ID of Account to take Payment From
ORG_PAY	MONEY		Amount ($) of Payment Due (Original as Calculated from initial Batch Process)
ACT_PAY	MONEY		Actual Amount ($) of Payment Due (as Modified from Original Due to Payments)
PAY_DUE_DATE	DATETIME		Date Payment Due
PAY_DATE	DATETIME		Date Payment Made
PAY_BCN	VARCHAR(20)		Batch Control Number of Payment Batch
PAY_TCN	VARCHAR(15)		TCN of Payment ACH Trans
STATUS	VARCHAR(1)		Status Flag for Record to enable quicker / easier searches
COMMMENTS	VARCHAR(200)		Comments regarding Payment
PAY_SERIAL_NO	VARCHAR(20)		System Assigned Serial Number to the Outstanding PAYMENT

Fig. 73

Table: Batch Payment

| PAY_BCN	VARCHAR(20)	NN	Batch Control Number
BATCH_ENTITY	VARCHAR(20)		MMC ID of Entity Payment Made To
PAY_ACC_TO	VARCHAR(20)		MMC ID of Account Payment Made To
PAY_ACC_FROM	VARCHAR(20)		MMC ID of Account Payment Taken From
PAY_AMOUNT	MONEY		Amount ($) of Payment Made
PAY_SERIAL_NO	VARCHAR(20)		System Assigned Serial Number to the Outstanding PAYMENT
PAY_DUE_DATE	DATETIME		Date Payment Due
PAY_DATE	DATETIME		Date Payment Made
MMC_TRAN_ID	VARCHAR(20)		Transaction (Master) ID Payment made under
MMC_TRAN_NO	VARCHAR(20)		Transaction (Sub) ID Payment made under

Fig. 74

File *.MM2

Record Code
ASCII 254 [1]

Device Type Code
[1]

Device Content S/N
[20]

T4BPOS (Crypt)
[10][C22]

File *.MM1

Record Code
ASCII 254 [1]

ES User ID
[24]

T4BPOS (Crypt)
[10][C22]
[STARTING RECORD]

File *.MM4

T1BPOS (Crypt)
[10][C22]

T23BPOS (Crypt)
[10][C22]

STRTT4BPOS (Crypt)
[10][C22]

PREVT4BPOS (Crypt)
[10][C22]

NEXTT4BPOS (Crypt)
[10][C22]

File *.MM3

Record Code
ASCII 254 [1]

Device Type Code
[1]

Device User Known SN
[20]

T4BPOS (Crypt)
[10][C22]

Fig. 75

Application → API → MM DLL → CD Validation → (disc)

Fig. 76

Fig. 77

Fig. 78

Passes:
Password if Locked;
Device Type Code;
[Drive] or "?";
[Serial Number]

**Function #2
Validate MM
Device to
Specific Device
(by S/N)**

User Application

MM Auth DLL

Returns:
Code

Access
Data File

Input Data
Validation

YES
[Locate
if Needed]

Perform Media
Validation; Read/
Decrypt S/N

Locate SN

Validate
Against KNOWN
SN?

T2

Validate If
Locked

NO

YES

T3

Get Record
IF Validating against
"Known" Serial Number

Return
Validation
Result

Validate Against
User Passed
SN

Fig. 79

Passes:
Password if Locked;
Data File Path
User ID to ADD

Input Data
Validation

Access
Data File

**Function #3
Add User ID**

User Application

MM Auth DLL

T1

Validate If Locked
Search for ID;
Fail if Found;
Fail if Max Records;
Add if Not Found and not Max,

Return
Action
Result

Returns:
Code

Fig. 80

Input Data
Validation

Passes:
Password if Locked;
Data File Path;
User ID to KILL

Access
Data File

Validate If Locked
Search for ID;
Fail if Not Found;
If Found; Record
T4BPOS and "KILL"
Record (Fill: "0")

User Application

Function #4
Kill User ID

MM Auth DLL

T1

Returns:
Code

NO
Return
Action
Result

T4BPOS
Ref?

YES

Get Record and
Remove T1BPOS;
STRTT4BPOS;
PREVT4BPOS.
Record NEXTT4BPOS,
then CLEAR

T4

YES
[Loop Action]

NO
Return
Action
Result

Another
Record?

Fig. 81

Input Data
Validation

Passes:
Password if Locked,
Data File Path,
User ID;
"Y"/"N" (FAIL if Already Assigned?);
[Device SN] or "R" and [Drive or "?"]

Access
Data File

Validate If Locked
Search for ID,
Fail if Not Found,
If Found, Record
T4BPOS

T1

User Application

Function #5
Assign Device

MM Auth DLL

A1

"R" Code
Passed?

No

YES
[Locate
if Needed]

Returns:
Code

T3

Record T4BPOS

Perform Media
Validation, Read/
Decrypt S/N

Locate
SN

Does T1
have T4BPOS
Ref?

YES

T2

Record T4BPOS

Get T1 Ref'd
T4BPOS,
Compare to
UserID

T4

NO

Get T4
Record

T4

Does
T4 (To Assign)
Already Have
T1BPOS
Ref?

YES
Fail and
Return
Action
Result

A1

YES
Fail and
Return
Action
Result

A1

T4 Data
Matches Device to
Assign ?

YES
[Loop Action]

NO

Add Current
T4BPOS

T1

NO

Another
Record?

Add T1BPOS
STRTT4BPOS, PREVT4BPOS,
and NEXTT4BPOS = 0

T4

NO
[Retain T4 Info for LAST Record in Series]

LAST RECORD
NEXTT4BPOS = {Current}

T4

Does
Last T4 Rec have
STRTT4BPOS
Record?

NO

CURRENT T4
STRTT4BPOS = {Last},
PREVT4BPOS= {Last};
NEXTT4BPOS = 0

T4

YES

T4

CURRENT T4
STRTT4BPOS = {Last
STRTT4BPOS Content};
PREVT4BPOS= {Last},
NEXTT4BPOS = 0

Fig. 82

Fig. 83

Input Data
Validation

Passes:
Password if Locked,
Data File Path,
User ID,
[Drive Letter] or "?";
[Device SN] or "?????"

Access
Data
File

"R" Code
Passed?

No

YES
[Locate
if Needed]

User Application

Function #8
Validate User

MM Auth DLL

T3

Validate If Locked
Record T4BPOS

Perform Media
Validation, Read/Decrypt S/N

Locate
SN

Record
T1BPOS

Returns.
Code

T4

T2

Validate If Locked
Record T4BPOS

T1

Validate User
against
USERID in
T1

Return
Validation
Result

Fig. 84

Passes:
Password if Locked;
Data File Path;
User ID to Verify

Access
Data File

Input Data
Validation

User Application

Function #9
Validate User ID
Exists in System

MM Auth DLL

T1

Validate If Locked;
Search for ID;
Fail if NOT Found;
Pass If Found

Returns:
"P" or "F"
[Fail Code]

Return
Action
Result

Fig. 85

Passes:
Password if Locked;
Data File Path;
User ID to ADD

Access
Data File

Input Data
Validation

Function #10
Return Device
Info for User ID

User Application

MM Auth DLL

Validate If Locked;
Search for ID;
Get T4BPOS

T1

Returns:
Delimited String using ";"
1st Record: # of Devices Found
Subsequent Records:
Device SN's (Both Known & Content)

YES
(Return 0
Device
Records)

Is T1
T4BPOS
=0?

NO

Get T4 Record;
Counter = Counter +1

T4

NO;
Get T4
Record
indicated
in Current
T4 NEXT

Get Associated T2/T3
Information;
Temp Store Device Info

T2

T3

Return
Action
Result

Is
Current T4
Next
=0?

Fig. 86

Fig. 87

Passes:
Password if Locked;
Data File Path;
Import Data File Path

User Application

Function #13
Import MM
Device
Information

MM Auth DLL

Access
Data File

Input Data
Validation

Returns:
Code;
Import Results

Import Data
File
Validation

Import
File

Open
File

LOOP A
Loop for Each
Record in Import
Data File

Validate If Locked
{First Time Only};
Search for Known
Serial Number;Fail as
Duplication of Record
If Found;

T3

If NOT Found, Add
Record - Record
Block/Position

Decrypt
Content SN from
Import Record

T2

Add Record - Same as
T3

T4

Add Record - Record
Block/Position; Add
T23BPOS

T3   T2

Add T4BPOS
to BOTH T2/T3

LOOP A

Return
Import Results

Fig. 88

Passes:
Data File Path,
FUNCTION #14
Optional Password to Lock with
FUNCTION# 16;17
Current Password
FUNCTION #15,17
Password

Function #14
Initiate DataFile

Function #15
Lock DataFile

Function #16
UnLock DataFile

Function #17
Change Locked
DataFile
Password

User Application

MM Auth DLL

Input Data Validation

Loop A
Process for Each File

Returns
Code

Validate FIRST File Access if Locked

T1   T3

T2   T4

Create Initial Record String Value

Function Determination

REFERENCE
INTERNAL
FUNCTION
"FIRSTRECORD"

Coded by BRIAN;
SUPPLIED TO
ELMAQ

16, 17

Validate Password

14

Populate Initial Record String With Random Characters

Write Lock Code in Initial Record String Value

File to be Locked?

Function Determination

15, 17

YES

NO

Encrypt Password and Populate Initial Record String

15

15

Loop A

Return Results

Fig. 89

Fig. 90

Fig. 91

Fig. 92

Enhanced DLL
(product application/piracy/user/device management)

Simple DLL
(media validation)

Smarte Authentication *PRODUCT* Plug-In
(web based)

(serialization tracking, media validation, product authorization, date read from CD)

Smarte Authentication Platform
(piracy & identity management)

Local or Hosted

Smarte Pay Platform
(payment management)

Smarte Authentication *USER* Plug-In
(web based)

(user authorization)

Smarte Pay Plug-In
(fraud prevention, multiple payment options, catalog system)

Fig. 93